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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/026,019	12/20/2001	Ralph H. Johnson	V637-02674 US	6105
128	7590	02/17/2004	EXAMINER	
HONEYWELL INTERNATIONAL INC. 101 COLUMBIA ROAD P O BOX 2245 MORRISTOWN, NJ 07962-2245			NGUYEN, DUNG T	
			ART UNIT	PAPER NUMBER
			2828	

DATE MAILED: 02/17/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/026,019

Applicant(s)

JOHNSON, RALPH H.

Examiner

Dung (Michael) T Nguyen

Art Unit

2828

-- Th MAILING DATE of this communication appears on the cover sheet with the corresponding address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 03 October 2003.  
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-33 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
6) ☒ Claim(s) 1-33 is/are rejected.  
7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.  
8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

  
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**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.  
10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)  
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 04/23/03 and 10/16.  
4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.  
5) ☐ Notice of Informal Patent Application (PTO-152)  
6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Response to Arguments***

Applicant's arguments with respect to claims 1-33 have been considered but are moot in view of the new ground(s) of rejection.

### ***Double Patenting***

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1-33 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting over claims 1-16 and 19-59 of copending Application No. 10/026044, claims 1-6 of copending Application No. 10/026055 and claims 1-27 and 29-34 of copending Application No. 10/026016.

This is a provisional obviousness-type double patenting rejection.

The subject matter claimed in the instant application is fully disclosed in the referenced copending application and would be covered by any patent granted on that copending application since the referenced copending application and the instant application are claiming common subject matter, as follows: Claims 1, 21, 24, 28-33 of application number 10/026019 recite a VCSEL comprising at least one quantum well having a depth of at least 40 meV and comprised of InGaAsN. Claims 1, 37 and 48 of copending application number 10/026044 recite a VCSEL comprising at least one quantum well having a depth of at least 40 meV and comprised of GaAsSb. Further claim 48 of copending application number 10/026044 recites an AlGaAs confinement layers sandwiching said barrier layers. The limitation in claims 1, 21, 24, 28-33 of this application is basically the same as the limitation in claims 1, 37 and 48 of the copending application 10/026044. The claims recite alternative substitution elements such as Al, In, N with the basic material GaAs. Therefore claims 1, 21, 24, 28-33 and claims 1-16 and 19-59 of copending application 10/026044 are considered as the "same invention". Furthermore, the substituted elements are disclosed in each application specification and title of the invention. Thus, the claims are not patentable distinct from each other.

The subject matter claimed in the instant application is fully disclosed in the referenced copending application and would be covered by any patent granted on that copending application since the referenced copending application and the instant application are claiming common subject matter, as follows: Claims 1, 21, 24, 28-33 of application number 10/026019 recite a VCSEL comprising at least one quantum well having a depth of at least 40 meV and comprised of InGaAsN. Claims 1, 3 and 5 of copending application number 10/026055 recite a VCSEL comprising at least one quantum well having a depth of at least 40 meV and comprised of

Art Unit: 2828

InGaAs; AlGaAs and GaAsN confinement layers. The limitation in claims 1, 21, 24, 28-33 of this application is basically the same as the limitation in claims 1, 3 and 5 of the copending application 10/026055. The claims recite alternative substitution elements such as Al, In, N with the basic material GaAs. Therefore claims 1, 21, 24, 28-33 and claims 1-6 of copending application 10/026055 are considered as the "same invention". Furthermore, the substituted elements are disclosed in each application specification and title of the invention. Thus, the claims are not patentable distinct from each other.

The subject matter claimed in the instant application is fully disclosed in the referenced copending application and would be covered by any patent granted on that copending application since the referenced copending application and the instant application are claiming common subject matter, as follows: Claims 1, 21, 24, 28-33 of application number 10/026019 recite a VCSEL comprising at least one quantum well having a depth of at least 40 meV and comprised of InGaAsSb. Claims 1, 25 and 33 of copending application number 10/026016 recite a VCSEL comprising at least one quantum well having a depth of at least 40 meV and comprised of InGaAsSbN. Further claim 25 of copending application number 10/026016 recites an AlGaAs confinement layers. The limitation in claims 1, 21, 24, 28-33 of this application is basically the same as the limitation in claims 1, 25 and 33 of the copending application 10/026016. The claims recite alternative substitution elements such as Al, In, N, Sb with the basic material GaAs. Therefore claims 1, 21, 24, 28-33 and claims 1-27 and 29-34 of copending application 10/026016 are considered as the "same invention". Furthermore, the substituted elements are disclosed in each application specification and title of the invention. Thus, the claims are not patentable distinct from each other.

Art Unit: 2828

A rejection based on double patenting of the "same invention" type finds its support in the language of 35 U.S.C. 101 which states that "whoever invents or discovers any new and useful process ... may obtain a patent therefor ..." (Emphasis added). Thus, the term "same invention," in this context, means an invention drawn to identical subject matter. See *Miller v. Eagle Mfg. Co.*, 151 U.S. 186 (1894); *In re Ockert*, 245 F.2d 467, 114 USPQ 330 (CCPA 1957); and *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970).

A statutory type (35 U.S.C. 101) double patenting rejection can be overcome by canceling or amending the conflicting claims so they are no longer coextensive in scope. The filing of a terminal disclaimer cannot overcome a double patenting rejection based upon 35 U.S.C. 101.

Claim 28 is objected to under 37 CFR 1.75 as being a substantial duplicate of claim 31.

When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jewell et al (US6359920) in view of Ishikawa (US5841152).

With respect to claims 1-33, Jewell et al disclose a VCSEL (100) comprising an active region (110) further comprising at least one quantum well (126, 128) of GaAsSb having a depth of 40meV (Fig.2b) and further including GaAs barrier layer (54') sandwiching said at least one quantum well and GaAs confinement layer (70') sandwiching said active region and nitrogen to be used at least 1% in group V of semiconductor material in the active region. Jewell also disclose alternative substitution elements such as In, Al, N, Sb with the basic material GaAs and the quantum well is up to and including 50 Å, note col. 5 line 24 to col. 37 line 18, see figures 1-11. However; Jewell do not disclose the quantum well depth is defined as the difference between a valence band offset and a conduction band offset. Ishikawa teaches the quantum well depth is defined as the difference between a valence band offset and a conduction band offset (col.5, 1.13-15). For the benefit of calculating the quantum well depth, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide Jewell the quantum well depth is defined as the difference between a valence band offset and a conduction band offset as taught by Ishikawa.

### ***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

Art Unit: 2828

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

#### **Communication Information**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dung (Michael) T Nguyen whose telephone number is (571) 272-1949. The examiner can normally be reached on 8:30 - 17:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul Ip can be reached on (571) 272-1941. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 306-3329.

Michael Dung Nguyen

  
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